

REMARKS

The Applicants have amended claim 1 and added claim 9.

§ 102 Rejection

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Dean, et al. Amended claim 1 now recites that the yeast slurry has a relatively high concentration of yeast from about 40 g/l yeast to about 80 g/l yeast on a dry weight basis. The Dean reference does not envision oxygenating such a yeast slurry and in fact teaches away from doing so. In this regard, Dean, et al. take great pains to insure that the liquid withdrawn to the membrane process is devoid (or nearly so) of biocatalyst particles, including microorganisms. See column 3, lines 8 - 13; column 6, lines 60 - 67; column 7, lines 8 - 9 and 60 - 65. Thus, Dean uses costly equipment and/or design precautions to insure that the fragile biocatalyst beads/microorganisms are not carried over into the sidestream leading to the membrane module. As such, Dean, et al. provide absolutely no disclosure for oxygenating a yeast slurry of the concentration now recited in claim 1. Further, claim 9 recites that Applicants' oxygenation process occurs before the yeast is pitched with a fermentable liquid medium. In contrast, the oxygenation in Dean is

directed to the fermentation broth or liquor. The importance of providing a method of oxygenating yeast prior to pitching at a rate sufficient to keep up with the very high oxygen uptake rate of yeast while avoiding foaming of the slurry and/or diluting the slurry is discussed throughout the instant specification. Accordingly, Applicants believe that the § 102 rejection is overcome.

§ 103 Rejection

Claims 3 - 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dean, et al. in view of Coutts. Dean is deficient for the reasons discussed with respect to the § 102 rejection. Coutts does not bridge these deficiencies. There is absolutely nothing in Coutts that discusses how the yeast cells are oxygenated. While the advantages of oxygenating yeast cells prior to pitching are recognized in the art, Applicants have ~~discovered a method of oxygenating yeast cells at high rates which avoids undesirable foaming or dilution of the yeast slurry.~~ discovered a method of oxygenating yeast cells at high rates which avoids undesirable foaming or dilution of the yeast slurry. For the foregoing reasons, it is believed that the § 103 rejection is overcome.

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Conclusion

In view of the amendments to the claims, and the Remarks being submitted herewith, Applicants respectfully request reconsideration and allowance of the present application.

The Applicants wish to invite the Examiner to telephone the Applicants' attorney at the number listed below if discussion with the Applicants' attorney would be of assistance to the Examiner or further the prosecution of the present application.

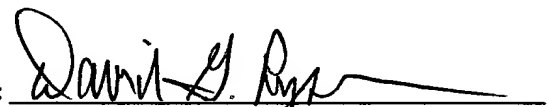
Applicants hereby petition to extend the period for response one month from April 17, 2001 to May 17, 2001. A fee transmittal sheet is enclosed for payment of the one month extension fee. If any other fees are deemed necessary, please charge such fees to Deposit Account 17-0055.

Respectfully submitted,

Nick J. Huige, et al.

Dated: May 17, 2001

By:


David G. Ryser
Reg. No. 36,407
QUARLES & BRADY LLP
411 East Wisconsin Avenue
Milwaukee WI 53202-4497
(414) 277-5717

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VERSION OF CLAIMS SHOWING CHANGES

1. (Amended) A method of oxygenating yeast slurry comprising the steps of:

(a) providing a yeast slurry having about 40 g/l yeast to about 80 g/l yeast on a dry weight basis;

[(a)] (b) passing at least a portion of the yeast slurry through a membrane contactor, the contactor comprising at least one hydrophobic, microporous membrane, the membrane having a liquid side and a gas side, wherein the contactor is connected to an oxygen source, and wherein at least a portion of the yeast slurry is in proximity to the membrane on the liquid side;

[(b)] (c) delivering oxygen from the oxygen source to the gas side of the membrane under conditions that cause at least a portion of the oxygen to transfer from the gas side of the membrane to the yeast slurry.